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7 UNITED STATES DISTRICT COURT
8 WESTERN DISTRICT OF WASHINGTON
9 AT SEATTLE

10 LUFTHANSA TECHNIK AG,

Case No. C14-1821RSM

11 Plaintiff,

ORDER RE: CLAIMS CONSTRUCTION

12 v.

13 ASTRONICS ADVANCED ELECTRONIC
14 SYSTEMS CORP. and KID-SYSTEME
15 GMBH,

16 Defendants.

17 **I. INTRODUCTION**

18 This matter comes before the Court on the parties' briefs regarding Claim Construction.
19 Dkt. ## 62, 63, 81, 82. Oral argument was held on February 5, 2016, pursuant to *Markman v.*
20 *Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995). Having reviewed the parties'
21 briefing, and having considered the arguments and evidence presented in the *Markman*
22 Hearing, the Court makes the following rulings regarding the patent claim terms at issue in this
23 matter.

24 **II. BACKGROUND**

25 Plaintiff Lufthansa Technik AG ("Lufthansa") alleges infringement of United States
26 Patent No. 6,016,016 ("the '016 patent") by Defendant Astronics Advanced Electronic Systems

1 (“AES”).¹ Lufthansa, in addition to being associated with other aspects of civil aviation, is also
 2 an innovator in the field of aircraft equipment. Dkt. #62 at 12. The inventions of the ’016
 3 patent were conceived by two Lufthansa employees, Andrew Muirhead and Henry Starke. *Id.*
 4 at 13. On May 31, 1997, the inventors filed an initial patent application in Germany, ultimately
 5 leading to European Patent No. 0881145. *Id.* On May 28, 1998, the inventors filed the
 6 application that became the ’016 patent in the United States. *Id.*

8 The patent claims at issue are directed to an aircraft power outlet system that “applies...
 9 voltage to the socket when the plug detector signals the presence of a plug.... i.e., no... voltage
 10 is provided... as long as no plug of an electric device is inserted.” Dkt. #64-1 at 7 (JA5).² This
 11 “excludes a danger to people by a potentially high supply voltage in the socket when the socket
 12 is not used [or by] manipulations of the socket by children by means of paper clips, knitting
 13 needles etc...” *Id.* The system has a feature that detects the presence of the contact pins of a
 14 properly-inserted plug before allowing power to flow to the socket. The patent explains that
 15 when a plug is inserted, the free ends of the contact pins actuate two microswitches in the
 16 socket that detect the presence of a plug. JA6, 4:56-65. A “control and supervision unit”
 17 determines the time between the activation of one plug prong contact switch and that of the
 18 second contact switch. JA8, 7:46-49. If the contact time is below a pre-determined “maximum
 19 value,” the system allows power to flow to the socket via the supply lines. JA8, 7:49-51, 56-
 20 61. This so-called timing function restricts the supply of power to the outlet when the system
 21 detects a foreign object inserted into only one slot in the socket or if the time difference
 22 between detection of two inserted objects exceeds the pre-determined maximum time value.
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28 ¹ Lufthansa and AES are litigating this issue in Germany, with an appeal currently pending. Dkt. #62 at 12.

² Hereinafter, the Court will cite to the Joint Appendix submitted by the parties by referring to its internal page numbers, e.g. JA005. This Joint Appendix is available at Dkt. #64-1 through 64-3.

1 The invention includes other important safety features, e.g., if the system detects a fault or short
 2 circuit, the power is shut off. JA6, 3:12-14.

3 Lufthansa eventually “teamed up with Defendant KID-Systeme GmbH (“KID”) to
 4 commercialize the inventions of the ’016 patent.... [licensing] KID to practice the ’016 patent
 5 and its foreign counterparts, and KID’s SKYPower line of power outlet systems incorporate the
 6 patented inventions.” Dkt. #62 at 12.

7 Lufthansa filed its Complaint in this Court on November 26, 2014 and moved for leave
 8 to amend its Complaint and join KID as a Defendant (Dkt. #32) on September 8, 2015. Initial
 9 briefing on claim construction was filed by Lufthansa and AES on November 25, 2015 (Dkt.
 10 ##62, 63), with responsive briefing (Dkt. ##81, 82) filed on December 16, 2016. Oral
 11 argument occurred on February 5, 2016.

12 KID made an appearance on January 8, 2016, solely to contest jurisdiction and move to
 13 dismiss claims brought against it. *See* Dkt. ## 83, 97. KID has not submitted briefing on claim
 14 construction and did not participate in the *Markman* hearing. KID’s Motion to Dismiss is
 15 currently noted for April 8, 2016. Dkt. #108.

16 III. SUMMARY OF CLAIMS FOR CONSTRUCTION

17 The parties submitted a Joint Claim Construction and Prehearing Statement that
 18 identified disputed claim terms. Dkt. #47 at 2-7. The following are the relevant claims with
 19 disputed terms in bold:

20 1: A voltage supply apparatus for providing a supply voltage for an
 21 electric device comprising a socket to which an electric device is
 22 adapted to be connected by means of a plug, **means for supplying**
supply voltage to the socket, the socket including **plug detector**
means for detecting the presence of a plug inserted in the socket,
 23 said **voltage supplying means** being provided remotely from the
 24 socket and being connected to the socket by a signal line and a
 25 supply line, the **voltage supplying means** being constructed and
 26 arranged for applying the supply voltage to the socket when the
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1 plug detector means indicates the presence of a plug over the
 2 signal line to the **voltage supplying means**, the **plug detector means**
 3 being constructed and arranged to detect the presence of
 4 contact pins of a plug in the socket, and **control means** responsive
 5 to plug presence detection by said **plug detector means** for
 6 **rendering the voltage supplying means operative to supply the**
supply voltage to the socket only if the time between the
detection of a first contact pin and the subsequent detection of
a second contact pin of the plug does not exceed a
predetermined maximum time value.

7 2: The voltage supply apparatus as defined in claim 1 wherein the
 8 **plug detector means** includes mechanical switches activated by
 9 contact pins of a plug inserted into the socket.

10 3: The voltage supply apparatus as defined in claim 1 wherein the
 11 socket and the **voltage supplying means** are associated with a seat
 12 of an aircraft.

13 4: The voltage supply apparatus as defined in claim 1 including
 14 central voltage source **means for supplying supply voltage** to a
 15 plurality of **voltage supply means**, and said **control means** is
 16 constructed and arranged for cutting-off voltage of said central
 17 voltage source means.

18 12: The voltage supply apparatus as defined in claim 1 including
 19 **fault current detector means** for detecting fault current to which
 20 said control means is responsive.

21 13: The voltage supply apparatus as defined in claim 12 including
 22 voltage switch means for turning off the voltage supply if the fault
 23 current detector detects fault current.

24 14: The voltage supply apparatus as defined in claim 1 including
 25 **short circuit detector means** for detecting a short circuit to which
 26 said control means is responsive.

27 15: The voltage supply apparatus as defined in claim 14 including
 28 voltage switch means for turning off the voltage supply if the **short**
circuit detector means detects a short circuit.

29
 30 Defendant AES argues that the above terms are indefinite because they fail to disclose a
 31 definite structure, and because the term “subsequent” does not include simultaneous detection
 32 of a plug. AES also argues that Lufthansa disclaimed simultaneous detection. Plaintiff

1 Lufthansa is the patent holder in this action, and argues that the ‘016 patent discloses sufficient
2 structure for each of the means-plus-function limitations, which are the majority of the above
3 terms. For Claim 1, Lufthansa argues that it did not disclaim simultaneous detection and that
4 the timing limitation is not indefinite.

5 **IV. LEGAL AUTHORITY**

6 **A. Claim Construction Principles**

7 Patent claim construction is a question of law for the Court, even if the case is
8 designated to go to a jury trial, but it may have underlying factual determinations that are now
9 reviewed for clear error. *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 837, 190 L.
10 Ed. 2d 719 (2015); *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995) (en
11 banc), aff’d, 517 U.S. 370, 116 S. Ct. 1384, 134 L. Ed. 2d 577 (1996). After the claims have
12 been properly construed, the fact-finder will compare the claims to the allegedly infringing
13 product or process. The comparison is conducted on an element-by-element basis.

14 When interpreting claims, a court’s primary focus should be on the intrinsic evidence of
15 record, which consists of the claims, the specification, and the prosecution history. *Phillips v.*
16 *AWH Corp.*, 415 F.3d 1303, 1314-17 (Fed. Cir. 2005) (en banc). The Court should begin by
17 examining the claim language. *Id.* at 1312. Claim language should be viewed through the lens
18 of a person of “ordinary skill in the relevant art at the time of the invention.” *SanDisk Corp. v.*
19 *Memorex Prods., Inc.*, 415 F.3d 1278, 1283 (Fed. Cir. 2005). A court should give the claim’s
20 words their “ordinary and customary meaning.” *Phillips*, 415 F.3d at 1312-13 (quotation
21 omitted). In construing a claim term’s ordinary meaning, the context in which a term is used
22 must be considered. *ACTV, Inc. v. Walt Disney Co.*, 346 F.3d 1082, 1088 (Fed. Cir. 2003).

However, the claims “must be read in view of the specification, of which they are a part.” *Phillips*, 415 F.3d at 1315 (quoting *Markman*, 52 F.3d at 979. Additionally, the doctrine of claim differentiation disfavors reading a limitation from a dependent claim into an independent claim. *See InterDigital Commc'ns, LLC v. Int'l Trade Comm'n*, 690 F.3d 1318, 1324 (Fed. Cir. 2012). The specification can offer “practically incontrovertible directions about a claim meaning.” *Abbott Labs. v. Sandoz, Inc.*, 566 F.3d 1282, 1288 (Fed. Cir. 2009). “When consulting the specification to clarify the meaning of claim terms, courts must take care not to import limitations into the claims from the specification.” *Id.* “[A]lthough the specification may well indicate that certain embodiments are preferred, particular embodiments appearing in the specification will not be read into claims when the claim language is broader than such embodiments.” *Tate Access Floors, Inc. v. Maxcess Techns., Inc.*, 222 F.3d 958, 966 (Fed. Cir. 2000) (quotation omitted). “By the same token, the claims cannot enlarge what is patented beyond what the inventor has described in the invention.” *Abbott Labs.*, 566 F.3d at 1288 (internal quotation omitted). “Likewise, inventors and applicants may intentionally disclaim, or disavow, subject matter that would otherwise fall within the scope of the claim.” *Id.* at 1288.

In addition to the specification, a court should consider the patent’s prosecution history, which consists of “the complete record of the proceedings before the PTO and includes the prior art cited during the examination of the patent.” *Phillips*, 415 F.3d at 1317. However, because the prosecution represents an “ongoing negotiation” rather than the “final product” of the negotiation, “it often lacks the clarity of the specification and thus is less useful for claim construction purposes.” *Id.* Consulting the prosecution history can, however, be helpful in determining whether the patentee disclaimed an interpretation during prosecution. *Research*

Plastics, Inc. v. Federal Packaging Corp., 421 F.3d 1290, 1296 (Fed. Cir. 2005). “Under the doctrine of prosecution disclaimer, a patentee may limit the meaning of a claim term by making a clear and unmistakable disavowal of scope during prosecution.” *Purdue Pharma L.P. v. Endo Pharm. Inc.*, 438 F.3d 1123, 1136 (Fed. Cir. 2006); *see also Chimie v. PPG Indus., Inc.*, 402 F.3d 1371, 1384 (Fed. Cir. 2005) (“The purpose of consulting the prosecution history in construing a claim is to ‘exclude any interpretation that was disclaimed during prosecution.’”).

Although courts are permitted to consider extrinsic evidence, like expert testimony, dictionaries, and treatises, such evidence is generally of less significance than the intrinsic record. *Phillips*, 415 F.3d at 1317 (citing *C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 862 (Fed. Cir. 2004)). Extrinsic evidence may not be used “to contradict claim meaning that is unambiguous in light of the intrinsic evidence.” *Id.* at 1324.

Means-plus-function claiming occurs when a claim term is drafted in a manner that invokes 35 U.S.C. § 112(f) (previously § 112, ¶ 6). *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1347-48 (Fed. Cir. 2015). Under this provision, an inventor may express a claim element “as a means or step for performing a specified function.” 35 U.S.C. § 112, ¶ 6. Means-plus function claims allow the inventor to claim his invention in terms of the function performed, as long as he discloses in the specification the structure that performs the associated function. *See Med. Instrumentation & Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1211 (Fed. Cir. 2003).

The court must first determine whether each term is a means-plus-function limitation. To guide this inquiry, the Federal Circuit loosely follows a rebuttable presumption: if the claim term “uses the word ‘means,’” it is presumed to be a means-plus-function limitation, but if the claim term does not use “means,” it is presumed not to be. *Williamson*, 792 F.3d at 1348. The ultimate determination, however, depends upon whether claim would be understood by persons

1 of ordinary skill in the art to give a sufficiently definite meaning for structure claimed. *Id.* In
 2 this case, the parties agree that certain terms are means-plus-function limitations.

3 Construction of means-plus-function limitations involves two steps. “First, the court
 4 must determine the claimed function. Second, the court must identify the corresponding
 5 structure in the written description of the patent that performs that function.” *Applied Med. Res.*
 6 *Corp. v. U.S. Surgical Corp.*, 448 F.3d 1324, 1332 (Fed. Cir. 2006) (citation omitted).
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8 “A patent is invalid for indefiniteness if its claims, read in light of the patent’s
 9 specification and prosecution history, fail to inform, with reasonable certainty, those skilled in
 10 the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct.
 11 2120, 2123 (2014). “Indefiniteness is a legal determination; if the court concludes that a
 12 person of ordinary skill in the art, with the aid of the specification, would understand what is
 13 claimed, the claim is not indefinite.” *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374,
 14 1381 (Fed. Cir. 2015) (citation omitted) (finding the challenged claim term not indefinite).
 15 Patents are presumed valid, and a challenger must prove invalidity by clear and convincing
 16 evidence. *Intel Corp. v. VIA Techs., Inc.*, 319 F.3d 1357, 1366 (Fed. Cir. 2003). If a single
 17 claim limitation is indefinite, the entire claim is invalid.
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B. ‘016 Patent Terms for Construction

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1. “Means for Supplying Supply Voltage”

21 The first claim term in dispute is “Means for Supplying Supply Voltage.” Claim 1 of
 22 the ‘016 patent provides as follows:
 23

24 1. A voltage supply apparatus for providing a supply voltage for an electric
 25 device comprising a socket to which an electric device is adapted to be
 26 connected by means of a plug, **means for supplying supply voltage** to the
 27 socket...
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1 JA8. The parties agree this is a means-plus-function claim term. Dkt. #47 at 1. Lufthansa
 2 asserts that the function is “providing voltage to the socket” and the structure is “circuit
 3 assembly having supply and signal lines, switches, and logic elements to receive and transmit
 4 internal and external signals and configured to activate the switches based upon those signals.”
 5 Dkt. #62 at 24. In contrast, AES argues that the function is “providing voltage to the socket
 6 when the plug detector means indicates the presence of a plug over the signal line to the voltage
 7 supplying means,” and the structure is not disclosed. Dkt. #63 at 19.

9 The Court agrees with Lufthansa that the function is “providing voltage to the socket,”
 10 consistent with the plain language of the claim. Dkt. #62 at 24; JA8. The Court agrees with
 11 Lufthansa that the structure is “circuit assembly having supply and signal lines, switches, and
 12 logic elements to receive and transmit internal and external signals and configured to activate
 13 the switches based upon those signals” based on the language of the specification. In a
 14 preferred embodiment, the voltage supplying means is described as “the supply device 16.”
 15 JA6, 4:11-26. The specification describes structures associated with supply device 16,
 16 including specifically numbered supply cables, signal lines, switches, and “control and
 17 supervision unit 60.” JA6-8. The Court concludes that a person of ordinary skill in the art,³
 18 reading the specification, would understand that the structure is a “circuit assembly having
 19 supply and signal lines, switches, and logic elements to receive and transmit internal and
 20 external signals and configured to activate the switches based upon those signals.” *See* JA147.
 21

22 The Court next turns to AES’ allegation of indefiniteness. AES argues that supply
 23 device 16, as shown on Figure 3 of the ‘016 Patent, is a “Russian nesting doll,” i.e. “a black
 24 box containing three interconnected black boxes;” the “control and supervision unit 60,” “short
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26 ³ During the Markman Hearing, the parties agreed that a person of ordinary skill in the art would be at the least an
 27 electrical engineer with a college degree. Lufthansa stated that such a person would also need two years of
 28 experience working on aircraft systems, but argued that this issue is not dispositive in this case.

1 circuit detector 62,” and “line supervision detector 64.” Dkt. #63 at 20. AES argues that no
2 circuit structures are disclosed for any of these boxes. *Id.* AES argues that “a patentee cannot
3 skirt the Patent Act’s requirements by pointing to some structure that theoretically could
4 perform the function, or arguing that one skilled in the art could look at the specification and
5 design a structure to perform the claimed function,” citing *Biomedino, LLC v. Waters Techs.*
6 *Corp.*, 490 F.3d 946, 953 (Fed. Cir. 2007) (“the inquiry is whether one of skill in the art would
7 understand the specification itself to disclose a structure, not simply whether that person would
8 be capable of implementing a structure.”). Dkt. #63 at 13. AES argues that *Biomedino* is
9 dispositive. *Id.* at 18. In *Biomedino*, a case involving medical valves, the Federal Circuit
10 upheld the lower court finding of invalidity for failure to disclose a structure, reasoning that “a
11 bare statement that known techniques or methods can be used does not disclose structure.” 490
12 F.3d at 953.

15 Lufthansa argues that the circuit diagrams of Figures 3 and 5 disclose circuitry, citing
16 JA6, 3:64-65, 4:1-2; JA147, ¶ 57. Dkt. #62 at 27. In the alternative, Lufthansa argues that “an
17 applicant is not required to disclose specific circuitry when one of ordinary skill would
18 recognize the associated structures from the description in the specification.” *Id.* Lufthansa
19 cites to *Atmel Corp. v. Info. Storage Devices, Inc.*, 198 F.3d 1374, 1380 (Fed. Cir. 1999) as a
20 case on point. In *Atmel*, the claim included the term “high voltage generating means.” The
21 defendant argued that the structure disclosed was insufficient because the specification depicted
22 the high-voltage generator circuit as a “black block,” without any detail as to what electrical
23 components comprised that circuit. The district court granted summary judgment of invalidity,
24 but the Federal Circuit reversed because the lower court failed to consider the knowledge of
25 one skilled in the art. *Id.* at 1383. *Atmel* holds that, consistent with Federal Circuit precedent,
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“disclosure of structure corresponding to a means-plus-function limitation may be implicit in the written description if it would have been clear to those skilled in the art what structure must perform the function recited in the means-plus-function limitation.” *Id.* at 1380. Because the specification cited an article and the patentee’s expert “testified that this title alone was sufficient to indicate to one skilled in the art the precise structure of the means recited in the specification,” the Federal Circuit found the disclosure in the specification adequate. *Id.* at 1382. Lufthansa also cites to *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1338 (Fed. Cir. 2008) for the proposition that a patent is not indefinite merely because the circuit element is shown as a “‘black box,’ i.e., nothing in the figures or text of the written description describes the details of its inner circuitry.... the absence of internal circuitry in the written description does not automatically render the claim indefinite.” Dkt. #81 at 6.⁴ In Response to AES’s brief, Lufthansa argues that *Biomedino* is not dispositive or applicable, because:

The patent in *Biomedino* involved a mechanical device for filtering and removing harmful compounds from blood. The term at issue there was “control means,” but that term was used in a very different context from how it is used in the ’016 patent. There, the term apparently described some kind of mechanical valve for routing the flow of blood and fluids during the filtration and removal process. The patent stated that “known differential pressure equipment can be used to operate valves, known valving equipment may be used, or known control equipment may be used.” 490 F.3d at 951. The Federal Circuit found the disclosure in *Biomedino* insufficient, distinguishing it from the situation in *Atmel*, where the specification disclosed an article, the content of which was well known by skilled artisans in the field. *Id.* at 952. The ’016 patent is much more like the patent in *Atmel* than the one in *Biomedino*. Here, the specification discloses structures that a skilled artisan would recognize—for example, switches, supply lines, signal lines, and logic elements.

⁴ Lufthansa also cites to two other cases for similar holdings. Dkt. #81 at 6 (citing *S3 Inc. v. nVIDIA Corp.*, 259 F.3d 1364, 1370-71 (Fed. Cir. 2001); *Intel Corp. v. VIA Techs., Inc.*, 319 F.3d 1357, 1365-66 (Fed. Cir. 2003)).

Dkt. #81 at 7. Lufthansa supports their argument by citing to both parties' expert reports. *Id.* (citing JA144-160; JA271). Lufthansa's expert testified that a "person of ordinary skill in the art would understand that the switches themselves are elements of the circuitry that generate signals on the signal lines... [and] would not need any disclosure of specific switches or circuitry to understand the scope of the claims." JA150-51.

The Court agrees with Lufthansa's analysis and Lufthansa's expert and concludes that the disclosed structures are sufficient under *Atmel*. This conclusion is based on the language of the patent itself, and to the extent necessary to establish how someone skilled in the art would interpret the structures being claimed, on both expert reports.

2. "Plug Detector Means"

The next term in dispute is "plug detector means." The parties agree this is a means-plus-function claim term, and agree that the function is "detecting the presence of contact pins of a plug inserted in the socket." Dkt. #47 at 1, 3. Thus the only dispute is over the structure. Claims 1 and 2 of the '016 patent provide as follows:

1. A voltage supply apparatus for providing a supply voltage for an electric device comprising a socket to which an electric device is adapted to be connected by means of a plug, means for supplying supply voltage to the socket, the socket including **plug detector means** for detecting the presence of a plug inserted in the socket...

...the **plug detector means** being constructed and arranged to detect the presence of contact pins of a plug in the socket, and control means responsive to plug presence detection by said **plug detector means** for rendering the voltage supplying means operative to supply the supply voltage to the socket...

2. The voltage supply apparatus as defined in claim 1 wherein the **plug detector means** includes mechanical switches activated by contact pins of a plug inserted into the socket.

JA8 (emphasis added).

As with the previous claim term, AES argues that the structure of this term is indefinite. Dkt. #47 at 3. Lufthansa argues that the associated structure is “switches,” which are explicitly mentioned in claim 2 and described in the specification. *See JA4, 2:31-34, JA6 4:42-45, JA7:44-49.* AES again argues that the patent fails to disclose the circuitry needed to perform the function. Dkt. #63 at 21-22.

Consistent with the Court’s ruling on the first disputed term and the testimony of Lufthansa’s expert, the Court finds that disclosure of such circuitry is not required for a person skilled in the art to understand this term. For these reasons previously stated, the Court finds that the structure is not indefinite, that the term “plug detector means” has the function of “detecting the presence of contact pins of a plug inserted in the socket” and its associated structure is “switches.”

3. *“Control means”*

The next term in dispute is “control means.” The parties agree this is a means-plus-function claim term. Dkt. #47 at 1. Claims 1 and 4 of the ‘016 patent provides as follows:

1. ...and **control means** responsive to plug presence detection by said plug detector means...

4. ...and said **control means** is constructed and arranged for cutting-off voltage of said central voltage source means.

JA8 (emphasis added).

Lufthansa argues that the function is “[r]endering the voltage supplying means operative to supply voltage to the socket.” Dkt. #47 at 3. AES argues that the function is “[r]endering the voltage supplying means operative... only if the time between detection of a first contact pin of a plug and the subsequent detection of a second contact pin of the plug does not exceed a predetermined time interval.” *Id.* The parties agree on a second function, cutting

1 off voltage. Dkt. #47 at 6. Lufthansa argues that the corresponding structure is “logic elements
 2 to receive and transmit internal and external signals and configured to activate switches based
 3 upon those signals.” *Id.* at 4. As with the previous term, AES argues that the structure is
 4 indefinite. *Id.*

5 Lufthansa argues that AES’ function is reading in a superfluous “when” limitation.
 6 Dkt. #62 at 29. AES argues that this “when” limitation is explicitly part of the claim, and that
 7 “courts routinely find that when a claimed function occurs is a crucial part of the limitation.”
 8 Dkt. #63 at 15 (citing cases from several district courts). Lufthansa argues that “the control
 9 means function is not limited to the specific conditions that AES seeks to impose, nor has AES
 10 ever argued that the structure would be different if their proposed function were adopted as
 11 opposed to [Lufthansa’s].” Dkt. #81 at 11 n.3. Lufthansa argues that the structure is disclosed
 12 in the specification:

15 Between the first activation of the one contact switch 45 and that
 16 of the other contact switch 46, a contact time is obtained by the
 17 control and supervision unit 60. If this contact time is below a
 18 maximum value, a corresponding enabling information is stored in
 19 the control and supervision unit 60.... the control and supervision
 20 unit 60 applies the supply voltage to the supply line 20 by means
 21 of an internal voltage switch so that the contact pins 53, 54 are
 22 provided with mains voltage via the contact elements 42, 43.

23 Dkt. #62 at 30 (citing JA8). AES again argues that there is no structure identified in the patent,
 24 instead there is just a “generic, blank box.” Dkt. #63 at 16.

25 Consistent with the Court’s ruling on the first disputed term, the Court finds that
 26 disclosure of circuitry is not required for a person skilled in the art to understand this term. The
 27 Court further finds that AES is impermissibly attempting to read an extra, unsupported
 28 limitation into the function of these terms. *See Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d
 1314, 1322 (Fed. Cir. 2003). For these reasons, the Court finds that the structure is not

1 indefinite, that the term “control means” has the function of “rendering the voltage supplying
 2 means operative to supply voltage to the socket” and its associated structure is “logic elements
 3 to receive and transmit internal and external signals and configured to activate switches based
 4 upon those signals.”

5 4. *“Fault current detector means” and “short circuit detector means”*

6 The next terms in dispute are “fault current detector means” and “short circuit detector
 7 means.” The parties agree these are means-plus-function claim terms. Dkt. #47 at 1. Claims
 8 12, 14 and 15 of the ‘016 patent provides as follows:

9 12. The voltage supply apparatus as defined in claim 1 including **fault**
 10 **current detector means** for detecting fault current to which said control
 11 means is responsive.

12 14. The voltage supply apparatus as defined in claim 1 including **short**
 13 **circuit detector means** for detecting a short circuit to which said control
 14 means is responsive.

15 15. The voltage supply apparatus as defined in claim 14 including voltage
 16 switch means for turning off the voltage supply if the **short circuit detector**
 17 **means** detects a short circuit.

18 JA9 (emphasis added).

19 The parties disagree about the function of these terms. Lufthansa argues that the
 20 function of the fault current detector means is “detecting fault current,” and the function of the
 21 “short circuit detector means” is “detecting a short circuit or overload.” Dkt. #47 at 6-7. AES
 22 argues that the function of the fault current detector means is “detecting fault current to which
 23 said control means is responsive,” and the function of the short circuit detector means is
 24 “detecting a short circuit to which the control means is responsive.” *Id.* Lufthansa argues that
 25 the structures for these terms are, respectively, “circuit configured to determine the difference
 26 of the current flowing in the outlet supply lines and transmit a signal,” and “circuit configured
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 28

1 to determine if the current flowing in the outlet supply lines is excessive and transmit a signal.”

2 *Id.* As with the previous claim term, AES argues that the structure for these terms are
 3 indefinite. *Id.*

4 Lufthansa argues that AES again tries to read an extra limitation into the function that
 5 requires “not only detection of a fault current or short circuit, but also requires that the control
 6 means is responsive to the detection.” Dkt. #62 at 32. AES argues that omitting this limitation
 7 is improper “because, as the Patent claims, the signals generated by these detectors are sent to
 8 the control means for processing, so leaving out that portion of the claim referencing the
 9 control means makes no sense.” Dkt. #63 at 23. Lufthansa argues that the specification
 10 provides the structure for both of these claim terms:

13 During operation of the socket 22, i.e., when the control and
 14 supervision unit 60 has applied the supply voltage to the socket 22
 15 via the supply lines 20, the short circuit detector 62 and the line
 16 supervision detector 64 have to perform extensive supervision
 17 tasks. On the one hand, a current limitation of the voltage supply to
 18 about 100 V is performed in the short circuit detector 62. Thereby
 19 an overload of the supply device 16 is prevented. Furthermore,
 20 when a strong overload is present, an overload signal is outputted
 21 by the short circuit detector to the control and supervision unit 60
 22 via the signal line 63. The second function of the short circuit
 23 detector 62 is fault current detection. If the difference of the
 24 current flowing in the two current supply lines 20' exceeds a
 25 predetermined value, a corresponding signal is outputted via the
 26 signal line 63 to the control and supervision unit 60, which then
 27 turns off the current supply. Both control functions of the short
 28 circuit detector 62 thus serve to determine electric interferences
 caused by the electric device 36 or potential manipulations.”

Dkt. #62 at 32 (citing JA7). AES again argues that there is no structure identified in the patent,
 instead there are blank boxes. Dkt. #63 at 23.

Consistent with the Court’s ruling on the first disputed term, the Court finds that
 disclosure of circuitry is not required for a person skilled in the art to understand this term. The
 Court further finds that AES is improperly attempting to read an extra, unsupported limitation

1 into the function of these terms. *See Omega Eng'g, supra.* For these reasons, the Court finds
 2 that the structures for these terms are not indefinite, that the term “fault current detector means”
 3 has the function of “detecting fault current,” “short circuit detector means” has the function of
 4 “detecting a short circuit or overload,” and the structures for these terms are, respectively,
 5 “circuit configured to determine the difference of the current flowing in the outlet supply lines
 6 and transmit a signal,” and “circuit configured to determine if the current flowing in the outlet
 7 supply lines is excessive and transmit a signal.”

9 5. *“Subsequent Detection”*

10 Claim 1 of the ‘016 patent provides as follows:

11 1. **...only if the time between the detection of a first contact pin and the
 subsequent detection of a second contact pin of the plug does not exceed
 a predetermined maximum time value.**

14 JA8 (emphasis added).

15 Lufthansa’s construction of this claim language is “the detection of the presence of first
 16 and second inserted contact pins such that the time interval of the detection ranges from zero to
 17 a predetermined maximum time value inclusive of these two end points.” Dkt. #47 at 5.
 18 Lufthansa’s proposed construction would cover any device that detects prongs inserted within
 19 “zero” seconds of each other (simultaneously) or “within a predetermined maximum time value
 20 inclusive of these two end points” (subsequently). *Id.*

22 AES argues that this claim language is indefinite. First, AES argues that the
 23 construction cannot include simultaneous detection because such an interpretation “conflicts
 24 with the plain meaning of two express phrases in the claim—‘only if’ and ‘subsequent
 25 detection.’” Dkt. #63 at 24-25. AES argues that Lufthansa is attempting to read these two
 26 phrases right out of the claim, and that this approach has been rejected by the Federal Circuit.
 27
 28

1 *Id.* at 25 (citing *Vederi, LLC v. Google, Inc.*, 744 F.3d 1376, 1382–85 (Fed. Cir. 2014)
 2 (reversing district court because “construction requiring elevation, and ‘elevation’ alone in the
 3 strict sense, gives no effect to the ‘substantially’ modifier contained in the claims.”); *Aspex*
 4 *Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F.3d 1335, 1348 (Fed. Cir. 2012) (reversing
 5 district court’s claim construction that the term “rearwardly directed free end” meant a
 6 “rearwardly directed end portion” because such a construction “effectively read [] the term
 7 ‘free’ out of the limitation”). AES argues that the claim’s construction must incorporate the
 8 “later in time” meaning of “subsequent.” Dkt. #63 at 24.

9
 10 AES also points to the prosecution history. The record clearly shows that Lufthansa
 11 amended Claim 1, removing the term “simultaneous” and adding the term “subsequent.” *See*
 12 JA105-110. The record also clearly shows that this language was changed, at least in part, to
 13 get around a prior patent, “the Crane Patent.” *See* JA108-09 (“the amendment... is ‘necessary’
 14 to define the invention over the patent to Crane et al...”).
 15

16 Because the claim cannot be construed to cover simultaneous detection, AES argues
 17 that the claim is left with an ambiguous range of time, that the patent does not adequately
 18 define simultaneous or subsequent detection, and that one of ordinary skill in the art “can only
 19 guess what is covered and what is not, making the claim indefinite.” Dkt. #63 at 28-29.
 20

21 In Response, Lufthansa argues that the patent history does not show a “clear and
 22 unmistakable disavowal” as required to find a disclaimer occurred. Dkt. #62 at 16. Lufthansa
 23 argues that it merely “amended its claims to clarify the claim scope when the examiner found
 24 one limitation to be a subset of another limitation...and then expressly stated that it was not
 25 surrendering any coverage...” Dkt. #81 at 14. Lufthansa points to language in the prosecution
 26 history where the examiner instructed the applicant to remove simultaneous detection to
 27
 28

1 overcome indefiniteness because simultaneous detection was a subset when a maximum
2 contact time is not exceeded between the first and second plug detection. *Id.* (citing JA101-02).
3 Lufthansa also argues that AES' interpretation of the word "subsequent" to mean "later in
4 time" is incorrect. *Id.* at 15. Lufthansa deems this interpretation to be "litigation-induced." *Id.*
5 Lufthansa offers its own definition: "the detection of another or second contact pin." Finally,
6 Lufthansa argues that "there is nothing unclear about this term" because Lufthansa has shown
7 that the predetermined time value includes zero. *Id.* at 16.

8
9 The Court agrees with AES—both the explicit language of the claim and the
10 prosecution history make clear that this claim does not include simultaneous detection. There
11 is ample evidence from the prosecution history to conclude that Lufthansa made a "clear and
12 unmistakable disavowal" of simultaneous detection in part to avoid the Crane patent. *See*
13 *Purdue Pharma, supra.* Even if the Court ignored that evidence, focused instead on the
14 "subset" discussion in the prosecution history, and believed that Lufthansa removed
15 "simultaneous" solely to remove the overlapping subsets, Lufthansa fails to explain why it not
16 only removed the word "simultaneous" in the amendment, but added the word "subsequent."
17 The Court agrees with AES' interpretation of that word. Lufthansa's interpretation of
18 "subsequent" to have no temporal meaning in this claim ignores that the word "time" is found
19 in the same sentence. JA8. Because the claim cannot be construed to cover simultaneous
20 detection, AES is correct that the claim is left trying to cover an ambiguous range of time, and
21 that one of ordinary skill in the art can only guess what is covered and what is not. Based on
22 the language of the claim, the remainder of the patent, and the prosecution history, the Court
23 finds by clear and convincing evidence that the claim language "subsequent detection" is
24 indefinite.
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1 **V. CONCLUSION**
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3 This Court has construed the disputed claim terms in this case as set forth above, and
4 the Clerk is directed to send a copy of this Order to all counsel of record.
5

6 DATED this 25 day of April 2016.
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9 RICARDO S. MARTINEZ
10 CHIEF UNITED STATES DISTRICT JUDGE
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